



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

09/981,029

10/17/2001

Meenakshi V. Sundar

25184-P041US/

5623

7590

05/12/2004

Lunda K. Russell
AIR LIQUIDE
2700 Post Oak Blvd.,
Houston, TX 77056

EXAMINER

ALVO, MARC S

ART UNIT

PAPER NUMBER

1731

DATE MAILED: 05/12/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/981,029	Applicant(s) MEENASKSHI ET AL	
	Examiner Steve Alvo	Art Unit 1731	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 2-27-2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-25 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-25 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1- 5, 8, 10-19 and 23-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over DOELLE (6,355,138) with or without RHEIMS et al (6,599,390) with or without the ADMITTED PRIOR ART (instant specification, page 2, line 19- page 3, line17).

DOELLE teaches depositing precipitated calcium carbonate in a variety of shapes, e.g. sclenohedral, rhombohedral, aciculares, aragonite and spherical (column 4, lines 17-18) wherein the calcium carbonate is precipitated by interaction with carbon dioxide generated using a combustion process associated with processing the fiber suspension, see DOELLE, column 3, lines 9-14. It would have been obvious to the routineer that the gas used to process the suspension is a chemical used in papermaking. It is noted that claim 3 can read on the single crystals of DOELLE. DOELLE further teaches "The calcium carbonate thus produced by the chemical reaction is effectively loaded into the lumen and grown as crystals on the fiber walls of a substantial portion of the fibers within the fiber suspension by controlling the initial process pH, temperature, pressure, reaction time, lime slaking temperature and lime average particle size within inner chamber 22. Dependent upon the specific application for which the fiber suspension is to be utilized (e.g., paper, carton, cardboard, tissue, etc.) the different types of crystals which may be grown on and in the fiber walls as well as on the fiber surface and between fibers of the individual fibers provide different physical properties to the resultant end product in the form of

a fiber web.” See, DOELLE, column 4, lines 2-14 for growing different types of crystals on and in the fiber walls. If necessary, RHEIMS et al teaches using crystals of different shapes to load fibers. It would have been obvious to use the different shaped calcium carbonate crystals of RHEIMS as the filler of DOELLE. See column 4, lines 35-36 for particle size of 0.5 to micrometers. See DOELLE, column 1, line 13 for wood fibers and abstract for consistency of 15 to 30%. The process steps of forming the product, e.g. claims 4, 5 and 12, and its intended use, e.g. claims 13-15, can not be given probative weight in a product claim. DOELLE treats the same type of material as Applicant and the material would contain the same amount of native calcium carbonate. The refined cellulosic fiber of DOELLE would inherently have primary, secondary, tertiary cell walls; a membrane surrounded by tertiary cell wall; lumen defined by an inner surface of the membrane; pits in the primary wall exposing the secondary wall and fibrils attached to the secondary cell walls. If this is not obvious then such is taught by the ADMITTED PRIOR ART. It would have been obvious that the refining of DOELLE would form pits exposing the secondary wall as the ADMITTED PRIOR ART teaches (page 3, lines 11-17) that reefing during papermaking effects partial removal of the primary wall exposing the secondary wall and raises fibrils on the surface of the fibers. Obviously the calcium carbonate on the walls of DOELLE would also be on the fibrils as they are raised onto the surface of the fibers during refining.

Claims 4 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over DOELLE (6,355,138) with or without RHEIMS et al (6,599,390) with or without the ADMITTED PRIOR ART (instant specification, page 2, line 19- page 3, line 17) as applied to claim 1 above, and further in view of DEPASQUALE et al (5,827,398).

If necessary, DEPASQUALE et al teaches controlling the zeta potential during papermaking using calcium carbonate filler. It would have been obvious to add a cationic charge to aid retention, when making a paper from the filled fiber of DOELLE, as taught by DEPASQUALE et al.

Claims 6-9 and 19, 20, 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over DOELLE (6,355,138) with or without RHEIMS et al (6,599,390) with or without the ADMITTED PRIOR ART (instant specification, page 2, line 19- page 3, line17) as applied to claim 1 above, and further in view of WO 97/01670.

WO 97/01670 teaches that it is known to treat mechanical pup or chemical pup, e.g. Kraft, with calcium carbonate crystals precipitated onto the surface of the product. It would have been obvious to the artisan that the pulp of DOELLE could be mechanical pulp, e.g. 500 CSF as the alternativeness of chemical and mechanical pulp is taught by WO 97/01670 for calcium carbonate precipitation. It would have been obvious to form and use the PCC calcium carbonate of WO 97/01670 as the calcium carbonate filler of DOELLE. See WO 97/01670 for crystal sizes of 0.3 to 2.5 micrometers. Obviously the crystals of DOELLE et al would be sized similar to the crystals of WO 97/01670 as they are formed in a similar manner. See WO 97/01670, page 7, line 31 for 50% filler. If necessary, claim 19 is rejected as WO 97/01670 treats the same type of material as Applicant and would contain the same amount of native calcium carbonate. See page 13 of WO 97/01670 for using precipitated (PCC) or non-precipitated (GCC) calcium carbonate. It would have been obvious to use a dispersing agent with the filler of DOELLE as such is taught by WO 97/01670, page 7, lines 25-27.

Claims 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over DOELLE (6,355,138) with or without RHEIMS et al (6,599,390) with or without the ADMITTED PRIOR ART (instant specification, page 2, line 19- page 3, line17)as applied to claim 1 above, and further in view of ADMITTED PRIOR ART (specification, page 3, lines 18-26).

The use of either non-precipitated (GCC) or precipitated (PCC) calcium carbonate as a source of calcium carbonate is known by the ADMITTED PRIOR ART. It would ave been obvious to use non-precipitated calcium carbonate as the calcium carbonate of DOELLE as taught by the ADMITTED PRIOR ART.

Claim 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over DOELLE (6,355,138) with or without RHEIMS et al (6,599,390) with or without the ADMITTED PRIOR ART (instant specification, page 2, line 19- page 3, line17)as applied to claim 1 above, and further in view of WO 99/42657.

WO 99/42657 teaches using calcium carbonate derived from a reaction of a salt of sodium bicarbonate with carbon dioxide. It would have been obvious to the routineer to derive the carbon dioxide of DOELLE using a salt of sodium bicarbonate as taught by WO 99/42657.

The argument that DOELLE does not teach "the presence of precipitated calcium carbonate in or on at least some of each of the lumen, secondary wall, exterior surface of the primary wall and the fibrils is not convincing as DOELLE teaches"

"The calcium carbonate thus produced by the chemical reaction is effectively loaded into the lumen and grown as crystals on the fiber walls of a substantial portion of the fibers within the fiber suspension by controlling the initial process pH, temperature, pressure, reaction time, lime slaking temperature and lime average particle size within inner chamber 22. Dependent upon the specific application for which the fiber suspension is to be utilized (e.g., paper, carton, cardboard, tissue, etc.) the different types of crystals which may be grown on and in the fiber walls as well as on the fiber surface and between fibers of the individual fibers provide different

physical properties to the resultant end product in the form of a fiber web. By precisely monitoring and controlling the initial process pH, reaction temperature, reaction pressure, reaction time, lime slaking temperature and lime average particle size as indicated above, a specific type of calcium carbonate crystal is controllably grown on the fiber walls, thereby altering the physical properties of the resultant fiber web.” (emphasis added).

The fiber walls (emphasis on plurality) of DOELLE would include the primary, secondary and tertiary walls.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a).

Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

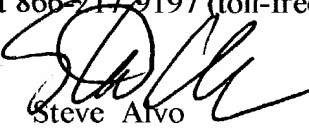
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Steve Alvo whose telephone number is 571-272-1185. The examiner can normally be reached on 5:45 AM - 2:15 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steven Griffin can be reached on 571-272-1189. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Application/Control Number:
09/981,029
Art Unit: 1731

Page 7

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Steve Alvo
Primary Examiner
Art Unit 1731

msa